

FILE 'HOME' ENTERED AT 09:26:54 ON 28 MAY 2004

=> file agricola biosis caplus caba

=> s daniell, h?/au

L1 389 DANIELL, H?/AU

=> s l1 and (chloroplast or plastid)

L2 157 L1 AND (CHLOROPLAST OR PLASTID)

=> duplicate remove l2

L3 97 DUPLICATE REMOVE L2 (60 DUPLICATES REMOVED)

=> d ti 50-97

L3 ANSWER 50 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
TI **Plastid**-transformed rice.

L3 ANSWER 51 OF 97 CABA COPYRIGHT 2004 CABI on STN  
TI The next generation of genetically engineered crops for herbicide and insect resistance: containment of gene pollution and resistant insects.

L3 ANSWER 52 OF 97 CABA COPYRIGHT 2004 CABI on STN  
TI **Chloroplast**-transgenic plants: panacea - no! gene containment - yes!.

L3 ANSWER 53 OF 97 CABA COPYRIGHT 2004 CABI on STN  
TI Reducing transgene escape routes.

L3 ANSWER 54 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN  
TI **Chloroplast**-transgenic plants: Panacea-NO! Gene containment-Yes!

L3 ANSWER 55 OF 97 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 15  
TI Containment of herbicide resistance through genetic engineering of the **chloroplast** genome.

L3 ANSWER 56 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
TI Engineering of **chloroplast** genome for the expression of biopolymer, herbicide and insect resistance genes.

L3 ANSWER 57 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
TI **Chloroplast** transformation of rice.

L3 ANSWER 58 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
TI Genetic engineering of plant chloroplasts.

L3 ANSWER 59 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
TI Transformation and foreign gene expression in plants mediated by microprojectile bombardment.

L3 ANSWER 60 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Transformation and foreign gene expression in plants mediated by microprojectile bombardment

L3 ANSWER 61 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
TI The **chloroplast** psbA promoter is more efficient in Escherichia coli than the T7 promoter for hyperexpression of a foreign protein.

L3 ANSWER 62 OF 97 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 18  
TI A 7.5-kbp region of the maize (T cytoplasm) mitochondrial genome contains a **chloroplast**-like trnI (CAT) pseudo gene and many short segments homologous to **chloroplast** and other known genes.

L3 ANSWER 63 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
TI Transformation of the tobacco **chloroplast** genome with the aroA gene to confer glyphosate tolerance.

L3 ANSWER 64 OF 97 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 19  
TI Isolation and characterization of an in vitro DNA replication system from maize mitochondria.

L3 ANSWER 65 OF 97 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States

of America. It contains copyrighted materials. All rights reserved.  
(2004) on STN

TI Engineering plants for stress tolerance via organelle genomes.

L3 ANSWER 66 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 20

TI A novel method to study DNA replication in vivo in organelles

L3 ANSWER 67 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN

TI Foreign gene expression in chloroplasts of higher plants mediated by tungsten particle bombardment

L3 ANSWER 68 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI Is lipid biosynthesis involved in conferring thermotolerance?.

L3 ANSWER 69 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI CHANGES IN **CHLOROPLAST** STRUCTURE AND FUNCTION IN SALT-ADAPTED TOBACCO CELLS.

L3 ANSWER 70 OF 97 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved.  
(2004) on STN DUPLICATE 21

TI Transient expression of beta-glucuronidase in different cellular compartments following biolistic delivery of foreign DNA into wheat leaves and calli.

L3 ANSWER 71 OF 97 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved.  
(2004) on STN DUPLICATE 22

TI Optimization of delivery of foreign DNA into higher-plant **chloroplast**.

L3 ANSWER 72 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI RESTORATION OF DELETIONS IN THE **CHLOROPLAST** GENOME OF WHEAT POLLEN ALBINO PLANTS A MODEL SYSTEM FOR **CHLOROPLAST** TRANSFORMATION.

L3 ANSWER 73 OF 97 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved.  
(2004) on STN DUPLICATE 23

TI Transient foreign gene expression in chloroplasts of cultured tobacco cells after biolistic delivery of **chloroplast** vectors.

L3 ANSWER 74 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI **CHLOROPLAST** GENE TRANSFER EXPRESSION OF AUTONOMOUSLY REPLICATING **CHLOROPLAST** VECTORS IN TOBACCO CELLS DELIVERED BY GENE GUN.

L3 ANSWER 75 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN

TI Uptake and expression of bacterial and cyanobacterial genes by isolated cucumber etioplasts [Erratum to document cited in CA107(19):169942X]

L3 ANSWER 76 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN

TI Uptake and expression of bacterial and cyanobacterial genes by isolated cucumber etioplasts

L3 ANSWER 77 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI **CHLOROPLAST** CULTURE XI. INVOLVEMENT OF PHYTOHORMONES IN THE GREENING OF HIGHER PLANTS.

L3 ANSWER 78 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI INTERACTION FUNCTIONAL RELATIONS AND EVOLUTION OF LARGE AND SMALL SUBUNITS IN RUBISCO FROM PROKARYOTA AND EUKARYOTA.

L3 ANSWER 79 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
DUPLICATE 24

TI AN EFFICIENT AND PROLONGED IN-VITRO TRANSLATIONAL SYSTEM FROM ISOLATED CUCUMBER CUCUMIS-SATIVUS ETIOPLASTS.

L3 ANSWER 80 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN

TI **Chloroplast** culture. XI. Involvement of phytohormones in the greening of higher plants

L3 ANSWER 81 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
DUPLICATE 25

TI OXYGENIC PHOTOREDUCTION OF METHYL VIOLOGEN AND NADP WITHOUT THE INVOLVEMENT OF PHOTOSYSTEM I DURING **PLASTID** DEVELOPMENT.

L3 ANSWER 82 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
DUPLICATE 26

TI RADIOISOTOPIC EVIDENCE FOR THE POLYPEPTIDES ASSOCIATED WITH PHOTOSYSTEM

## II.

- L3 ANSWER 83 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN  
 TI Role of photo-electron transport in the protein synthesis mediated by isolated plastids
- L3 ANSWER 84 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
 DUPLICATE 27  
 TI BIO ENGINEERING OF PHOTOSYNTHETIC MEMBRANES REQUIREMENT OF MAGNESIUM FOR THE CONVERSION OF CHLOROPHYLLIDE A TO CHLOROPHYLL A DURING THE GREENING OF ETIO CHLOROPLASTS IN-VITRO.
- L3 ANSWER 85 OF 97 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 28  
 TI **Chloroplast** culture X: thylakoid assembly in vitro.
- L3 ANSWER 86 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
 TI PHOTO REDUCTION OF METHYL VIOLOGEN WITHOUT THE INVOLVEMENT OF PHOTOSYSTEM I DURING **PLASTID** DEVELOPMENT.
- L3 ANSWER 87 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
 TI IN-VITRO SYNTHESIS OF PHOTOSYNTHETIC MEMBRANES 1. DEVELOPMENT OF PHOTOSYSTEM I ACTIVITY AND CYCLIC PHOTO PHOSPHORYLATION.
- L3 ANSWER 88 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN  
 TI Chlorophyll a biosynthetic routes and chlorophyll a chemical heterogeneity in plants
- L3 ANSWER 89 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN  
 TI Study of proton translocation in chloroplasts - a new approach
- L3 ANSWER 90 OF 97 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 29  
 TI **Chloroplast** culture VIII. A new effect of kinetin in enhancing the synthesis and accumulation of protochlorophyllide in vitro Cucumber, Cucumis sativus.
- L3 ANSWER 91 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
 DUPLICATE 30  
 TI IS DIRECT SPECTROPHOTOMETRIC DETERMINATION OF CHLOROPHYLL IN PIGMENT EXTRACTS OF TISSUES UNDER DIFFERENT PHYSIOLOGICAL CONDITIONS VALID?.
- L3 ANSWER 92 OF 97 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 31  
 TI **Chloroplast** culture. IX. Chlorophyll(IDE) a biosynthesis in vitro at rates higher than in vivo Photosynthesis.
- L3 ANSWER 93 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN  
 TI **Chloroplast** bioengineering: the greening of chloroplasts in vitro
- L3 ANSWER 94 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN  
 TI Site of action of 2,5-dimethoxy-3,6-dichloro-p-benzoquinone in the photosynthetic electron transport chain
- L3 ANSWER 95 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN  
 TI On the possible site of sulfite action in the photosynthetic electron transport chain and the light modulation of enzyme activity
- L3 ANSWER 96 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN  
 TI Substituted p-benzoquinones having high electron affinity as photosystem II electron acceptors
- L3 ANSWER 97 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
 TI **CHLOROPLAST** BIO ENGINEERING THE GREENING OF CHLOROPLASTS IN-VITRO.

=> d bib abs 67 65 63 61 58-59

- L3 ANSWER 67 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1993:487436 CAPLUS  
 DN 119:87436  
 TI Foreign gene expression in chloroplasts of higher plants mediated by tungsten particle bombardment  
 AU **Daniell, Henry**

CS Dep. Bot. Microbiol., Auburn Univ., Auburn, AL, 36849, USA  
SO Methods in Enzymology (1993), 217(Recombinant DNA, Pt. H), 536-56, 2  
plates  
CODEN: MENZAU; ISSN: 0076-6879  
DT Journal  
LA English  
AB The transformation of chloroplasts of higher plants using tungsten  
particle bombardment is described. Detailed protocols are given.

L3 ANSWER 65 OF 97 AGRICOLA Compiled and distributed by the National  
Agricultural Library of the Department of Agriculture of the United States  
of America. It contains copyrighted materials. All rights reserved.  
(2004) on STN  
AN 95:30847 AGRICOLA  
DN IND20458429  
TI Engineering plants for stress tolerance via organelle genomes.  
AU **Daniell, H.**; PoroboDessai, A.; Prakash, C.S.; Moar, W.J.  
CS Auburn University, Auburn, AL.  
AV DNAL (QH573.N37)  
SO NATO ASI series. Series H, Cell biology, 1994. Vol. 86 p. 589-604  
Publisher: [Berlin ; New York : Springer-Verlag, c1986-  
CODEN: NASBE4; ISSN: 1010-8793

NTE In the series analytic: Biochemical and cellular mechanisms of stress  
tolerance in plants / edited by J.H. Cherry.  
Proceedings of a NATO Advanced Research Workshop held June 20-24, 1993,  
Maratea, Italy.  
Includes references  
CY Germany  
DT Article  
FS Non-U.S. Imprint other than FAO  
LA English

L3 ANSWER 63 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
AN 1996:358562 BIOSIS  
DN PREV199699080918  
TI Transformation of the tobacco **chloroplast** genome with the aroA  
gene to confer glyphosate tolerance.  
AU Datta, Rina; **Daniell, Henry**  
CS Molecular Genetics Program, Dep. Bot. and Microbiol., Auburn Univ.,  
Auburn, AL 36849-5407, USA  
SO Plant Physiology (Rockville), (1996) Vol. 111, No. 2 SUPPL., pp. 168.  
Meeting Info.: Annual Meeting of the American Society of Plant  
Physiologists. San Antonio, Texas, USA. July 27-31, 1996.  
CODEN: PLPHAY. ISSN: 0032-0889.  
DT Conference; (Meeting)  
Conference; Abstract; (Meeting Abstract)  
Conference; (Meeting Poster)  
LA English  
ED Entered STN: 5 Aug 1996  
Last Updated on STN: 6 Aug 1996

L3 ANSWER 61 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
AN 1997:221464 BIOSIS  
DN PREV199799513180  
TI The **chloroplast** psbA promoter is more efficient in Escherichia  
coli than the T7 promoter for hyperexpression of a foreign protein.  
AU Brixey, P. J.; Guda, C.; **Daniell, H.** [Reprint author]  
CS Mol. Genet. Program, Dep. Bot. Microbiol., 101 Life Sci. Build., Auburn  
Univ., Auburn, AL 36849-5407, USA  
SO Biotechnology Letters, (1997) Vol. 19, No. 4, pp. 395-399.  
CODEN: BILED3. ISSN: 0141-5492.  
DT Article  
LA English  
ED Entered STN: 22 May 1997  
Last Updated on STN: 22 May 1997

AB The T7 promoter is commonly used in E. coli expression studies but has  
several disadvantages due to induction with isopropylthio-beta-D-  
galactoside (IPTG) including the prohibitive cost of IPTG, reduction in  
cell growth, and the poisonous nature of IPTG prohibiting its use in  
pharmaceutical products. The **chloroplast** psbA promoter produces  
an 18.5 fold increase in expression in E. coli compared to the T7  
promoter. Also, the psbA promoter does not have the disadvantages of  
induction with IPTG.

L3 ANSWER 58 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
AN 2002:87654 BIOSIS  
DN PREV200200087654  
TI Genetic engineering of plant chloroplasts.  
AU **Daniell, H.** [Inventor]; McFadden, B. A. [Inventor]  
CS Moscow, Id., USA  
ASSIGNEE: AUBURN UNIVERSITY  
PI US 5693507 Dec. 2, 1997

SO Official Gazette of the United States Patent and Trademark Office Patents,  
(Dec. 2, 1997) Vol. 1205, No. 1, pp. 414. print.  
CODEN: OGUPE7. ISSN: 0098-1133.  
DT Patent  
LA English  
ED Entered STN: 16 Jan 2002  
Last Updated on STN: 25 Feb 2002

L3 ANSWER 59 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
AN 1997:276692 BIOSIS  
DN PREV199799575895  
TI Transformation and foreign gene expression in plants mediated by  
microprojectile bombardment.  
AU **Daniell, Henry**  
CS Molecular Genetics Program, Dep. Botany Microbiology, Auburn Univ.,  
Auburn, AL, USA  
SO Tuan, R. S. [Editor]. METH MOL BIOL, (1997) pp. 463-489. Methods in  
Molecular Biology; Recombinant gene expression protocols.  
Publisher: Humana Press Inc., Suite 808, 999 Riverview Drive, Totowa, New  
Jersey 07512, USA. Series: Methods in Molecular Biology.  
CODEN: MMBYBO. ISSN: 0097-0816. ISBN: 0-89603-333-3 (paper), 0-89603-480-1  
(cloth).  
DT Book; (Book Chapter)  
LA English  
ED Entered STN: 3 Jul 1997  
Last Updated on STN: 3 Jul 1997

=> d bib abs 51-53 56

L3 ANSWER 51 OF 97 CABA COPYRIGHT 2004 CABI on STN  
AN 2001:139569 CABA  
DN 20013137963  
TI The next generation of genetically engineered crops for herbicide and  
insect resistance: containment of gene pollution and resistant insects  
AU **Daniell, H.**  
CS Molecular Biology & Microbiology Department, 306 Biological Sciences  
Building, University of Central Florida, Orlando, FL 32816-2360, USA.  
SO AgBiotechNet, (1999) Vol. 1, No. ABN 024, pp. 1-7. available at  
<http://www.agbiotechnet.com>. 45 ref.  
Publisher: CAB International. Wallingford  
CY United Kingdom  
DT Journal  
LA English  
ED Entered STN: 20011206  
Last Updated on STN: 20011206  
AB Plant genetic engineering and biotechnology is now moving from the initial  
euphoria to the phase of course correction. Several environmental problems  
related to plant genetic engineering prevent realization of its full  
potential. One such common concern is the escape of foreign genes through  
pollen dispersal from transgenic crop plants engineered for herbicide  
resistance to their weedy relatives creating "superweeds" or causing gene  
pollution among other crops. Such dispersal of pollen from transgenic  
plants to surrounding non-transgenic plants has been well documented. The  
high rate of such gene flow from crops to wild relatives (as high as 38%  
in sunflower and 50% strawberries) is certainly a serious environmental  
concern. Clearly, maternal inheritance of foreign genes is highly  
desirable in such instances where there is potential for outcross. Yet  
another concern in the use of commercial nuclear transgenic crops  
expressing the *Bacillus thuringiensis* (Bt) toxins is the suboptimal  
production of toxins, resulting in an increased risk of pests developing  
Bt resistance. Additionally, reliance on a single (or similar) Bt  
protein(s) for insect control increases the likelihood of Bt resistance  
development. Plant-specific recommendations to reduce Bt resistance  
development include increasing Bt expression levels (high dose strategy),  
expressing multiple toxins (gene pyramiding), or expressing the protein  
only in tissues highly sensitive to damage (tissue specific expression).  
Such hyperexpression of a novel Bt protein in chloroplasts has resulted in  
100% mortality of insects that are up to 40 000-fold resistant to other Bt  
proteins. An added advantage in **chloroplast** genetic engineering  
is that the foreign gene will not be expressed in pollen; this is  
especially important in the light of recent reports that pollen from Bt  
maize is highly toxic to monarch butterflies. Recent developments in these  
areas are discussed in this review.

L3 ANSWER 52 OF 97 CABA COPYRIGHT 2004 CABI on STN  
AN 1998:155183 CABA  
DN 19981612419  
TI **Chloroplast**-transgenic plants: panacea - no! gene containment -  
yes!  
AU **Daniell, H.**; Varma, S.; Stewart, C. N., Jr.; Prakash, C. S.  
CS Department of Botany and Microbiology, Auburn University, Auburn, AL

36849-5407, USA.

SO Nature Biotechnology, (1998) Vol. 16, No. 7, pp. 602. 16 ref.  
 DT Letter  
 LA English  
 ED Entered STN: 19981014  
 Last Updated on STN: 19981014

AB This is a response to a letter by C. N. Stewart, Jr. and C. S. Prakash (Nature Biotechnology (1998) 16, 401), which had argued that a report on genetic engineering via the **chloroplast** genome (H. Daniell et al., Nature Biotechnology (1998) 16, 345-348) had wrongly given the impression that crops harbouring chloroplastic transgenes will be immune to gene flow through pollen transfer and hybridization, and therefore be biologically contained. The present authors argue that maternal inheritance of foreign genes in most angiosperm crops does mean that gene flow will be prevented, although it is acknowledged that biparental transmission occurs in gymnosperms, and a low level of paternal transmission occurs in tobacco.

L3 ANSWER 53 OF 97 CABA COPYRIGHT 2004 CABI on STN  
 AN 2000:114613 CABA  
 DN 19981607493  
 TI Reducing transgene escape routes  
 AU Gray, A. J.; Raybould, A. F.; **Daniell, H.**  
 CS Institute of Terrestrial Ecology, Furzebrook Research Station, Furzebrook Road, Wareham, Dorset BH20 5AS, UK.  
 SO Nature (London), (1998) Vol. 392, No. 6677, pp. 653-654. 12 ref.  
 ISSN: 0028-0836  
 DOI: 10.1038/33537  
 DT Journal  
 LA English  
 ED Entered STN: 20000920  
 Last Updated on STN: 20040216

AB The implications are considered of a paper describing genetically engineering herbicide resistance (glyphosate via 5-enolpyruvyl shikimate-3-phosphate synthase) into the **chloroplast** genome (H. Daniell et al., Nature Biotechnology (1998) 16, 345-348). This technique has the potential to prevent transmission of transgenes to wild relatives of crop plants, avoiding "superweeds". It would also prevent cross-contamination between transgenic crop plants bearing differing traits. However, transgenic plants will still form be able to form volunteer or feral populations.

L3 ANSWER 56 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
 AN 1998:375686 BIOSIS  
 DN PREV199800375686  
 TI Engineering of **chloroplast** genome for the expression of biopolymer, herbicide and insect resistance genes.  
 AU **Daniell, H.** [Reprint author]  
 CS Dep. Bot. Microbiol., Auburn Univ., Auburn, AL 36849-5407, USA  
 SO In Vitro Cellular and Developmental Biology Animal, (March, 1998) Vol. 34, No. 3 PART 2, pp. 77A. print.  
 Meeting Info.: 1998 Meeting of the Society for In Vitro Biology. Las Vegas, Nevada, USA. May 30-June 4, 1998. Society for In Vitro Biology.  
 ISSN: 1071-2690.  
 DT Conference; (Meeting)  
 Conference; Abstract; (Meeting Abstract)  
 Conference; (Meeting Poster)  
 LA English  
 ED Entered STN: 2 Sep 1998  
 Last Updated on STN: 2 Sep 1998

=> d ti 40-49

L3 ANSWER 40 OF 97 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 11

TI Stable expression of a biodegradable protein-based polymer in tobacco chloroplasts.

L3 ANSWER 41 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN  
 TI Environmentally friendly approaches to genetic engineering.

L3 ANSWER 42 OF 97 CABA COPYRIGHT 2004 CABI on STN  
 TI The next generation of genetically engineered crops for herbicide and insect resistance: containment of gene pollution and resistance.

L3 ANSWER 43 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
 TI Genetic engineering of plant chloroplasts.

L3 ANSWER 44 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN

TI Universal **chloroplast** integration and expression vectors,  
transformed plants and their products

L3 ANSWER 45 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Hyperexpression of bioelastic polypeptides in a host cell

L3 ANSWER 46 OF 97 AGRICOLA Compiled and distributed by the National  
Agricultural Library of the Department of Agriculture of the United States  
of America. It contains copyrighted materials. All rights reserved.  
(2004) on STN DUPLICATE 12

TI Overexpression of the *Bacillus thuringiensis* (Bt) Cry2Aa2 protein in  
chloroplasts confers resistance to plants against susceptible and  
Bt-resistant insects.

L3 ANSWER 47 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 13  
TI New tools for **chloroplast** genetic engineering

L3 ANSWER 48 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
DUPLICATE 14

TI Environmentally friendly approaches to genetic engineering.

L3 ANSWER 49 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
TI Stable expression of a biodegradable protein-based polymer in tobacco  
chloroplasts.

=> d bib abs 49 47 46 44 43

L3 ANSWER 49 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
AN 2000:123016 BIOSIS  
DN PREV200000123016  
TI Stable expression of a biodegradable protein-based polymer in tobacco  
chloroplasts.  
AU Guda, C.; Lee, S.-B.; **Daniell, H.** [Reprint author]  
CS Department of Molecular Biology and Microbiology, University of Central  
Florida, BIO 306, Orlando, FL, 32816-2360, USA  
SO Plant Cell Reports, (Jan., 1999) Vol. 19, No. 3, pp. 257-262. print.  
CODEN: PCRPD8. ISSN: 0721-7714.  
DT Article  
LA English  
ED Entered STN: 5 Apr 2000  
Last Updated on STN: 3 Jan 2002  
AB Bioelastic protein-based polymers (PBP) have several medical (prevention  
of post-surgical adhesions) and non-medical (biodegradable plastic)  
applications. This study compares expression levels of PBP genes  
(synthetic) integrated into the nuclear genome or the large single-copy  
(LSC) or inverted repeat (IR) region of the **chloroplast** genome  
in transgenic tobacco plants. Polymer transcripts accumulated up to  
100-fold higher in the IR plants than in those of nuclear transgenic  
plants. Integration of foreign genes into all of the **chloroplast**  
genomes (homoplasmy) and higher levels of polymer transcripts were  
observed only in the IR and not in LSC transgenic plants. Expression of  
the polymer protein was further confirmed by Western blot analysis.

L3 ANSWER 47 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 13  
AN 1999:577354 CAPLUS  
TI New tools for **chloroplast** genetic engineering  
AU **Daniell, Henry**  
CS Department of Molecular Biology and Microbiology, University of Central  
Florida, Orlando, FL, 32826-3227, USA  
SO Nature Biotechnology (1999), 17(9), 855-856  
CODEN: NABIF9; ISSN: 1087-0156  
PB Nature America  
DT Journal; News Announcement  
LA English  
AB Unavailable  
RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 46 OF 97 AGRICOLA Compiled and distributed by the National  
Agricultural Library of the Department of Agriculture of the United States  
of America. It contains copyrighted materials. All rights reserved.  
(2004) on STN DUPLICATE 12

AN 1999:31044 AGRICOLA  
DN IND21978315  
TI Overexpression of the *Bacillus thuringiensis* (Bt) Cry2Aa2 protein in  
chloroplasts confers resistance to plants against susceptible and  
Bt-resistant insects.

AU Kota, M.; **Daniell, H.**; Varma, S.; Garczynski, S.F.; Gould, F.;  
Moar, W.J.  
CS Auburn University, AL.  
AV DNAL (500 N21P)

SO Proceedings of the National Academy of Sciences of the United States of America, Mar 2, 1999. Vol. 96, No. 5. p. 1840-1845  
 Publisher: Washington, D.C. : National Academy of Sciences,  
 CODEN: PNASA6; ISSN: 0027-8424

NTE Includes references

CY District of Columbia; United States

DT Article; Conference

FS U.S. Imprints not USDA, Experiment or Extension

LA English

AB Evolving levels of resistance in insects to the bioinsecticide *Bacillus thuringiensis* (Bt) can be dramatically reduced through the genetic engineering of chloroplasts in plants. When transgenic tobacco leaves expressing Cry2Aa2 protoxin in chloroplasts were fed to susceptible, Cry1A-resistant (20,000- to 40,000-fold) and Cry2Aa2-resistant (330- to 393-fold) tobacco budworm *Heliothis virescens*, cotton bollworm *Helicoverpa zea*, and the beet armyworm *Spodoptera exigua*, 100% mortality was observed against all insect species and strains. Cry2Aa2 was chosen for this study because of its toxicity to many economically important insect pests, relatively low levels of cross-resistance against Cry1A-resistant insects, and its expression as a protoxin instead of a toxin because of its relatively small size (65 kDa). Southern blot analysis confirmed stable integration of cry2Aa2 into all of the **chloroplast** genomes (5,000-10,000 copies per cell) of transgenic plants. Transformed tobacco leaves expressed Cry2Aa2 protoxin at levels between 2% and 3% of total soluble protein, 20- to 30-fold higher levels than current commercial nuclear transgenic plants. These results suggest that plants expressing high levels of a nonhomologous Bt protein should be able to overcome or at the very least, significantly delay, broad spectrum Bt-resistance development in the field.

L3 ANSWER 44 OF 97 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1999:166744 CAPLUS

DN 130:219137

TI Universal **chloroplast** integration and expression vectors, transformed plants and their products

IN **Daniell, Henry**

PA Auburn University, USA

SO PCT Int. Appl., 131 pp.  
 CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9910513	A1	19990304	WO 1998-IB1199	19980805
	W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, RW:	GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG		
	AU 9884573	A1	19990316	AU 1998-84573	19980805
	AU 748210	B2	20020530		
	EP 1002115	A1	20000524	EP 1998-935230	19980805
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO			
	BR 9815611	A	20020730	BR 1998-15611	19980805
	JP 2002524023	T2	20020806	JP 2000-507821	19980805
PRAI	US 1997-55314P	P	19970807		
	US 1998-79042P	P	19980323		
	US 1998-79640	A	19980515		
	WO 1998-IB1199	W	19980805		

AB The invention provides universal **chloroplast** integration and expression vectors which are competent to stably transform and integrate genes of interest into **chloroplast** genome of multiple species of plants. The vectors comprise a portion of the intergenic spacer 2 region between the tRNAI13 and the tRNA Ala genes of the **chloroplast** genome, whereby double homologous recombination with the conserved spacer 2 region in the target **chloroplast** genome is facilitated. Transformed plants and their progeny are provided. Monocotyledonous and dicotyledonous plants are transformed which have never been transformed heretofore. Plants transformed with a synthetic gene express valuable biodegradable protein-based polymers (PBPs). Transformed plants produce high value mols. Resistance is provided to agricultural crops against the major classes of chemical herbicides. Herbicide resistance is used as a lethal selectable marker for **chloroplast** transformation. The transformed plants are capable of expressing in addition to the targeted trait, a desirable, secondary non-targeted trait. Insect resistance is provided to transformed plants, both against insects that are susceptible to Bt toxins and against insects that have developed resistance to Bt



toxins.  
RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 43 OF 97 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
AN 1999:456267 BIOSIS  
DN PREV199900456267  
TI Genetic engineering of plant chloroplasts.  
AU **Daniell, Henry** [Inventor, Reprint author]; McFadden, Bruce A.  
[Inventor]  
CS University of Idaho, Moscow, ID, USA  
ASSIGNEE: Auburn University  
PI US 5932479 Aug. 03, 1999  
SO Official Gazette of the United States Patent and Trademark Office Patents,  
(Aug. 3, 1999) Vol. 1225, No. 1. print.  
CODEN: OGUPE7. ISSN: 0098-1133.  
DT Patent  
LA English  
ED Entered STN: 1 Nov 1999  
Last Updated on STN: 1 Nov 1999

=> logoff hold  
STN INTERNATIONAL SESSION SUSPENDED AT 09:37:48 ON 28 MAY 2004

FILE 'HOME' ENTERED AT 09:59:14 ON 08 JUN 2004

=> file agricola biosis caplus caba

=> s PEG and drought  
L1 763 PEG AND DROUGHT

=> s l1 and plant  
L2 490 L1 AND PLANT

=> s l2 and select?  
L3 79 L2 AND SELECT?

=> duplicate remove l3  
L4 62 DUPLICATE REMOVE L3 (17 DUPLICATES REMOVED)

=> d ti 25-50

L4 ANSWER 25 OF 62 CABA COPYRIGHT 2004 CABI on STN  
TI In vitro **selection** and **plant** regeneration from  
polyethylene glycol adapted callus of blackgram.

L4 ANSWER 26 OF 62 CABA COPYRIGHT 2004 CABI on STN  
TI Effects of salt and osmotic shocks on unadapted and adapted callus lines  
of tobacco.

L4 ANSWER 27 OF 62 CABA COPYRIGHT 2004 CABI on STN  
TI The role of polyamines, ATP, kinetin and **selection** in stress  
tolerance of rice (Oryza sativa (L.)) calli.

L4 ANSWER 28 OF 62 CABA COPYRIGHT 2004 CABI on STN  
TI Growth and solute adjustment of calli of Populus clones cultured on  
nutrient medium containing polyethylene glycol.

L4 ANSWER 29 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Effect of water stress on different enzymic activities in wheat

L4 ANSWER 30 OF 62 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
TI Measurement of cell membrane stability evaluated by electrolyte leakage as  
a **drought** and heat tolerance test in rice (Oryza sativa L.).

L4 ANSWER 31 OF 62 CABA COPYRIGHT 2004 CABI on STN  
TI In vitro **selection** for **drought**-tolerant lines in  
wheat. II. In vitro characterization of cell lines and **plant**  
regeneration.

L4 ANSWER 32 OF 62 CABA COPYRIGHT 2004 CABI on STN  
TI In vitro **selection** and characterization of water stress tolerant  
callus cultures of tomato (Lycopersicon esculentum L.).

L4 ANSWER 33 OF 62 CABA COPYRIGHT 2004 CABI on STN  
TI In vitro **selection** for **drought** tolerant lines in  
wheat. I. Effect of polyethylene glycol on the embryogenic cultures.

L4 ANSWER 34 OF 62 CABA COPYRIGHT 2004 CABI on STN

TI **Selectively** advantageous effects of B chromosomes on germination behaviour in *Allium schoenoprasum* L.

L4 ANSWER 35 OF 62 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
TI Maize in vitro breeding for osmo-resistance and characteristics of regenerant plants.

L4 ANSWER 36 OF 62 CABA COPYRIGHT 2004 CABI on STN  
TI In vitro **selection** and characterization of **drought**-tolerant plants of durum wheat (*Triticum durum* Desf).

L4 ANSWER 37 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 9  
TI In vitro **selection** and characterization of *Vigna radiata* cell-line resistant to **PEG**-induced **drought** stress

L4 ANSWER 38 OF 62 CABA COPYRIGHT 2004 CABI on STN  
TI **Selection** for resistance to **PEG** induced water stress in cell suspension cultures and mutants of alfalfa.

L4 ANSWER 39 OF 62 CABA COPYRIGHT 2004 CABI on STN  
TI **PEG**-tolerant cell clones of chilli pepper: growth, osmotic potentials and solute accumulation.

L4 ANSWER 40 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Effect of priming and infusion of growth regulators into seeds of **selected** soybean cultivars on **drought** sensitivity of the resultant seedlings

L4 ANSWER 41 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 10  
TI **Drought** tolerance in faster- and slower-growing black spruce (*Picea mariana*) progenies: II. Osmotic adjustment and changes of soluble carbohydrates and amino acids under osmotic stress

L4 ANSWER 42 OF 62 CABA COPYRIGHT 2004 CABI on STN  
TI Characterization and regeneration of salt- and water-stress mutants from protoplast culture of *Nicotiana plumbaginifolia* (Viviani).

L4 ANSWER 43 OF 62 CABA COPYRIGHT 2004 CABI on STN  
TI Use of tissue culture to test **plant** resistance to abiotic stresses.

L4 ANSWER 44 OF 62 CABA COPYRIGHT 2004 CABI on STN  
TI The effect of water stress on callus of winter wheat.

L4 ANSWER 45 OF 62 CABA COPYRIGHT 2004 CABI on STN  
TI Gene expression associated with water-stress adaptation of rice cells and identification of two genes as hsp 70 and ubiquitin.

L4 ANSWER 46 OF 62 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN  
TI In vitro **selection** and regeneration of cotton resistant to high temperature stress.

L4 ANSWER 47 OF 62 CABA COPYRIGHT 2004 CABI on STN  
TI Effect of water potential and temperature on the germination of four species of African savanna trees.

L4 ANSWER 48 OF 62 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
TI AN IN-VITRO ASSAY FOR **DROUGHT**-TOLERANT COCONUT GERMPLASM.

L4 ANSWER 49 OF 62 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Electrolyte and Pi leakages and soluble sugar content as physiological tests for screening resistance to water stress in *Phaseolus* and *Vigna* species

L4 ANSWER 50 OF 62 CABA COPYRIGHT 2004 CABI on STN  
TI **Selection** and physiology of cell cultures of Douglas-fir grown under conditions of water stress.

=> s ll and transform?

L5 10 L1 AND TRANSFORM?

=> d ti 1-10

L5 ANSWER 1 OF 10 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN  
TI AhCMO, regulated by stresses in *Atriplex hortensis*, can improve

**drought** tolerance in transgenic tobacco.

L5 ANSWER 2 OF 10 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
TI Accumulation of trehalose within transgenic chloroplasts confers  
**drought** tolerance.

L5 ANSWER 3 OF 10 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
TI INFLUENCE OF PLANT CULTIVAR AND PLASMID DNA ON **TRANSFORMATION**  
RATES IN TOBACCO AND MOTH BEAN.

L5 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Accumulation of trehalose within transgenic chloroplasts confers  
**drought** tolerance

L5 ANSWER 5 OF 10 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Metabolic engineering: A novel approach for producing stress tolerant  
transgenic plants

L5 ANSWER 6 OF 10 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Cloning and characterization of CMO gene from Atriplex hortensis

L5 ANSWER 7 OF 10 CAPLUS COPYRIGHT 2004 ACS on STN  
TI Influence of plant cultivar and plasmid-DNA on **transformation**  
rates in tobacco and moth bean

L5 ANSWER 8 OF 10 CABA COPYRIGHT 2004 CABI on STN  
TI Enhanced tolerance to salt stress and water deficit by overexpressing  
superoxide dismutase in tobacco (Nicotiana tabacum) chloroplasts.

L5 ANSWER 9 OF 10 CABA COPYRIGHT 2004 CABI on STN  
TI Accumulation of trehalose within transgenic chloroplasts confers  
**drought** tolerance.

L5 ANSWER 10 OF 10 CABA COPYRIGHT 2004 CABI on STN  
TI Improved performance of transgenic fructan-accumulating tobacco under  
**drought** stress.

=> d bib abs 10

L5 ANSWER 10 OF 10 CABA COPYRIGHT 2004 CABI on STN  
AN 95:78643 CABA  
DN 19951604180  
TI Improved performance of transgenic fructan-accumulating tobacco under  
**drought** stress  
AU Pilon-Smits, E. A. H.; Ebskamp, M. J. M.; Paul, M. J.; Jeuken, M. J. W.;  
Weisbeek, P. J.; Smeekens, S. C. M.  
CS Department of Molecular Cell Biology, University of Utrecht, Padualaan 8,  
3584 CH Utrecht, Netherlands.  
SO Plant Physiology, (1995) Vol. 107, No. 1, pp. 125-130. 20 ref.  
ISSN: 0032-0889  
DT Journal  
LA English  
ED Entered STN: 19950502  
Last Updated on STN: 19950502  
AB The transgenic fructan-accumulating tobacco line KP12-9, containing the  
SacB gene from Bacillus subtilis encoding levansucrase, was used to  
investigate the possible functional significance of fructans during  
**PEG-mediated drought** stress. Analysis of biomass  
production during **drought** stress revealed that fructan producing  
tobacco plants performed significantly better than the wild-type. The  
growth rate, fresh weight and dry weight were 55, 33 and 59% higher,  
respectively, than the wild-type. The difference in weight was observed in  
all organs and was particularly pronounced in roots. Under non-stressed  
control conditions the presence of fructans had no significant effect on  
growth rate and yield. Under all conditions the total non-structural  
carbohydrate content was higher in the transgenic plants. It was concluded  
that the introduction of fructans into this non-fructan-producing species  
mediated enhanced resistance to **drought** stress.

=> d bib abs 8

L5 ANSWER 8 OF 10 CABA COPYRIGHT 2004 CABI on STN  
AN 2004:72896 CABA  
DN 20043044921  
TI Enhanced tolerance to salt stress and water deficit by overexpressing  
superoxide dismutase in tobacco (Nicotiana tabacum) chloroplasts  
AU Badawi, G. H.; Yamauchi, Y.; Shimada, E.; Sasaki, R.; Kawano, N.; Tanaka,  
K.; Tanaka, K.  
CS Department of Plant Biotechnology, Faculty of Agriculture, Tottori  
University, Koyama, Tottori 680-8553, Japan. jotanaka@mus.es.tottori-

u.ac.jp  
 SO Plant Science, (2004) Vol. 166, No. 4, pp. 919-928. 50 ref.  
 Publisher: Elsevier Science Ltd. Oxford  
 ISSN: 0168-9452  
 CY United Kingdom  
 DT Journal  
 LA English  
 ED Entered STN: 20040511  
 Last Updated on STN: 20040511  
 AB A chimeric gene consisting of the coding sequence for cytosolic Cu/Zn-superoxide dismutases (SOD) from *Oryza sativa* fused to the chloroplast transit sequence from *Arabidopsis thaliana* glutathione reductase was used for generating transgenic tobacco plants. This construct was cloned into appropriate binary vector and mobilized into *Agrobacterium tumefaciens* C58C2. Tobacco leaf discs were infected with *Agrobacterium* and cultured on kanamycin selective medium. The integration and expression of Cu/Zn-SOD in tobacco genome was confirmed by Southern dot blot hybridization and SOD activity staining, respectively. Several transgenic lines were obtained and screened for SOD activity. The transgenic lines showed enhanced tolerance to the active oxygen-generating paraquat and sodium sulfite. Similarly, when net photosynthesis was measured, the first generation of the transgenic lines showed enhanced tolerance to salt, water, and PEG stresses, over the wild type. These results suggested that the overexpressed Cu/Zn-SOD enhances the chloroplast antioxidant system.

=> d bib abs 5

L5 ANSWER 5 OF 10 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2001:897668 CAPLUS  
 DN 136:96776  
 TI Metabolic engineering: A novel approach for producing stress tolerant transgenic plants  
 AU Kalyani, K.; Choudhary, Anil; Rajam, M. V.  
 CS Plant Genetic Manipulation Group, Department of Genetics, University of Delhi South Campus, New Delhi, 110 021, India  
 SO Perspectives in Biotechnology, Proceedings of National Symposium on "Perspectives in Biotechnology", Warangal, India, Feb. 26-27, 1999 (2001), Meeting Date 1999, 139-147. Editor(s): Reddy, S. M.; Rao, Digamber; Vidyavati. Publisher: Scientific Publishers (India), Jodhpur, India.  
 CODEN: 69CBQW  
 DT Conference; General Review  
 LA English  
 AB A review. Genetic engineering offers a more specific and efficient method for genetic manipulation of crop plants as compared to usual plant breeding procedures. It offers the advantage of introducing genes from unrelated systems into plants as well as the manipulation of expression levels of the new genes. The technique is being used to produce transgenic plants with useful agronomical traits. Plants are known to accumulate polyamines (e.g., putrescine and spermidine), polyols (e.g., mannitol and myo-inositol), sugars (e.g., fructose and trehalose), glycine betaine and proline under osmotic stress conditions and, therefore, their metabolic pathways are being manipulated to engineer plants tolerant to various abiotic stresses. Rice is susceptible to various abiotic stresses and the accumulation of polyamines in rice plants imparts tolerant to stresses. The transformation of indica rice (via *Agrobacterium*) with genes of polyamines biosynthetic pathway as well as carbohydrate metabolism under constitutive promoter (CaMV 35S) is being attempted. Eggplant has also been engineered to increase the content of an osmolyte, mannitol, using mannitol-1-phosphate dehydrogenase (mtID). Transgenic plants showed no morphol. aberrations and are tolerant to salt and PEG mediated water stress. (mtID) gene has also been introduced into tomato to obtain overproducing mannitol transgenics. Pathogenesis-related proteins like osmotin and thaumatin are also been known to confer resistance to both fungal pathogens and osmotic stresses. Tobacco transgenics for thaumatin gene showed high level of resistance to *Rhizoctonia solani* and *Pythium aphanidermatum* as well as osmotic stresses (salinity and drought). The results of these expts. are discussed in detail.

RE.CNT 47 THERE ARE 47 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> s 11 and transgen?

L6 13 L1 AND TRANSGEN?

=> d ti 1-13

L6 ANSWER 1 OF 13 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved.

(2004) on STN

TI AhCMO, regulated by stresses in Atriplex hortensis, can improve **drought** tolerance in **transgenic** tobacco.

L6 ANSWER 2 OF 13 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI Accumulation of trehalose within **transgenic** chloroplasts confers **drought** tolerance.

L6 ANSWER 3 OF 13 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI AhCMO, regulated by stresses in Atriplex hortensis, can improve **drought** tolerance in **transgenic** tobacco.

L6 ANSWER 4 OF 13 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI Osmotic stress responses of wheat species and cultivars differing in **drought** tolerance: Some interesting genes (advices for gene hunting).

L6 ANSWER 5 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

TI The role of aquaporin RWC3 in **drought** avoidance in rice

L6 ANSWER 6 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

TI Accumulation of trehalose within **transgenic** chloroplasts confers **drought** tolerance

L6 ANSWER 7 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

TI AhCMO, regulated by stresses in Atriplex hortensis, can improve **drought** tolerance in **transgenic** tobacco

L6 ANSWER 8 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

TI Metabolic engineering: A novel approach for producing stress tolerant **transgenic** plants

L6 ANSWER 9 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

TI Cloning and characterization of CMO gene from Atriplex hortensis

L6 ANSWER 10 OF 13 CABA COPYRIGHT 2004 CABI on STN

TI Enhanced tolerance to salt stress and water deficit by overexpressing superoxide dismutase in tobacco (Nicotiana tabacum) chloroplasts.

L6 ANSWER 11 OF 13 CABA COPYRIGHT 2004 CABI on STN

TI Accumulation of trehalose within **transgenic** chloroplasts confers **drought** tolerance.

L6 ANSWER 12 OF 13 CABA COPYRIGHT 2004 CABI on STN

TI AhCMO, regulated by stresses in Atriplex hortensis, can improve **drought** tolerance in **transgenic** tobacco.

L6 ANSWER 13 OF 13 CABA COPYRIGHT 2004 CABI on STN

TI Improved performance of **transgenic** fructan-accumulating tobacco under **drought** stress.

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STN INTERNATIONAL SESSION SUSPENDED AT 10:06:31 ON 08 JUN 2004